WHAT IS CLAIMED IS:

1. A communication system which has a plurality of mobile terminals and a base station, each of said mobile terminals and/or base station comprising:

a medium access control sub-layer;

upper layers of said medium access control sub-layer; and

a lower layer of said medium access control sub-layer,

wherein said medium access control sub-layer is configured to perform self-basic functions in response to basic function execution requests or functions associated with said upper layers or lower layer in response to requests therefrom.

2. The communication system as set forth in Claim 1, wherein said basic functions are a random access control information transfer function, a control information transfer function, a user information transfer function, framing/deframing functions, segmentation/reassembly functions, functions of dividing a frame of a specific one of said upper layers into channels of said lower layer and vice versa, a cyclic redundancy check function, a function of detecting an error of a medium access control sub-layer frame, and a rate adaptation function of adjusting the number of bits ~~suitably for a radio frame.~~

3. The communication system as set forth in Claim 1, wherein said associated functions are a synchronization information control function, a system information control function, lower channel activation/deactivation functions, quality monitoring and reporting functions of, for the maintenance of traffic channel quality, supporting power control, triggering a handover or reporting a channel condition upon traffic channel allocation, and a multi-bearer sequencing function of sequencing a multi-code.

4. The communication system as set forth in Claim 1, wherein said medium access control sub-layer includes a common control channel group and a dedicated control channel group which have a logical type of channels.

5. The communication system as set forth in Claim 4, wherein said common control channel group includes:

a synchronization channel for transferring time information for system time and base information for identification of said base station;

a broadcasting control channel for broadcasting access parameter information for access to said base station by a corresponding one of said mobile terminals, adjacent cell information indicative of radio frequency information of an adjacent cell, and available frequency information; and

a common control channel for setting a stand alone dedicated control channel between said corresponding mobile terminal and said base station.

6. The communication system as set forth in Claim 5, wherein said common control channel includes:

a paging channel;

a random access channel for access to said base station by said corresponding mobile terminal; and

a forward access channel for response of said base station to the access of said corresponding mobile terminal.

7. The communication system as set forth in Claim 4, wherein said dedicated control channel group includes:

a stand alone dedicated control channel formed between a corresponding one of said mobile terminals and said base station for transferring terminal association setup information and call setup information;

an associated control channel formed between said corresponding mobile terminal and said base station for transferring power control information and handover information; and

a traffic channel formed between said corresponding mobile terminal and said base station for transferring actual data.

8. The communication system as set forth in Claim 1, wherein said medium access control sub-layer includes:

first channel control means for transferring information for synchronization between an originating end and a terminating end, setting a stand alone dedicated control channel between said originating end and said terminating end and performing a call setting operation between said originating end and said terminating end using the set control channel; and

second channel control means for providing a connection-oriented point-to-point service to an upper layer of said first channel control means and monitoring the quality of a radio link formed between said originating end and said terminating end.

9. The communication system as set forth in Claim 8, wherein said first channel control means includes:

a synchronization control entity for controlling a synchronization channel for transferring system time information and base station identification information;

a broadcast control entity for controlling a broadcasting control channel for broadcasting general system information; and

a common control channel entity for setting or controlling said stand alone dedicated control channel between

said originating end and said terminating end.

10. The communication system as set forth in Claim 9, wherein said common control channel entity includes:

a paging control entity for controlling a paging channel for paging said terminating end;

a random access control entity for controlling a random access channel for access to said terminating end by said originating end; and

a response control entity for controlling a response control channel for response to the access of said originating end.

11. The communication system as set forth in Claim 8, wherein said second channel control means includes:

a dedicated control entity for controlling said stand alone dedicated control channel set between said originating end and said terminating end; and

a traffic control entity for controlling a traffic channel formed between said originating end and said terminating end.

12. The communication system as set forth in Claim 8, wherein said traffic control entity is adapted to vary a rate of said traffic channel according to a predetermined service

type.

13. A method of processing signals using medium access control sub-layers in a communication system which has a plurality of mobile terminals and a base station, said medium access control sub-layers being provided respectively in said mobile terminals and base station, wherein each of said medium access control sub-layers of said mobile terminals and/or base station is configured to perform self-basic functions or functions associated with upper layers or a lower layer thereof if signal processing operations of a corresponding one of said mobile terminals, of said base station or between said corresponding mobile terminal and said base station are requested.

14. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a synchronization information or system information broadcasting control operation between said corresponding mobile terminal and said base station, said step of performing said broadcasting control operation including the steps of:

sending time information, system information and paging information from said base station to said corresponding mobile terminal if said broadcasting control operation between said corresponding mobile terminal and said base station is

requested; and

receiving said time information, system information and paging information from said base station and transferring a synchronization request message or system information update request message to said lower layer of said corresponding mobile terminal.

15. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a random access control operation between said corresponding mobile terminal and said base station, said step of performing said random access control operation including the steps of:

sending a radio resource request message from said corresponding mobile terminal to said base station if said random access control operation between said corresponding mobile terminal and said base station is requested;

sending a radio resource request acknowledge message from said base station to said corresponding mobile terminal;

sending a radio resource response message from said base station to said corresponding mobile terminal; and

transferring a radio resource response reception message to a specific one of said upper layers of said corresponding mobile terminal.

16. The signal processing method as set forth in Claim

13, wherein said method comprises the step of performing a lower channel activation or deactivation control operation of said corresponding mobile terminal or base station, said step of performing said lower channel activation or deactivation control operation including the steps of:

transferring a communication path activation or deactivation request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said lower channel activation or deactivation control operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to activate or deactivate a communication path in response to said communication path activation or deactivation request message from said specific upper layer; and

allowing said lower layer to transfer the activated or deactivated result to said specific upper layer.

17. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a cell condition or channel condition reporting operation of said corresponding mobile terminal, said step of performing said cell condition or channel condition reporting operation including the steps of:

sending a cell condition or channel condition measurement request message from said base station to said corresponding mobile terminal if said cell condition or channel condition reporting operation of said corresponding mobile terminal is requested;

transferring a cell condition or channel condition measurement command to said lower layer of said corresponding mobile terminal in response to said cell condition or channel condition measurement request message from said base station;

allowing said lower layer of said corresponding mobile terminal to measure a cell condition or channel condition of said corresponding mobile terminal in response to said cell condition or channel condition measurement command; and

sending the measured result of said cell condition or channel condition from said lower layer of said corresponding mobile terminal to said base station.

18. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a control information/user information request operation of said corresponding mobile terminal or base station, said step of performing said control information/user information request operation including the step of sending a control information/user information request message from a specific one of said upper layers of said corresponding mobile terminal

or base station to said base station or corresponding mobile terminal if control information and user information are requested by said specific upper layer of said corresponding mobile terminal or base station.

19. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a cipher control operation of said corresponding mobile terminal or base station, said step of performing said cipher control operation including the steps of:

transferring a cipher request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said cipher control operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to perform a cipher operation in response to said cipher request message from said specific upper layer; and

transferring the result of said cipher operation from said lower layer to said specific upper layer.

20. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a handover control operation of said corresponding mobile

terminal or base station, said step of performing said handover control operation including the steps of:

transferring a handover command from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if a handover operation of said corresponding mobile terminal or base station is requested;

allowing said lower layer to perform said handover operation in response to said handover command from said specific upper layer; and

transferring the result of said handover operation from said lower layer to said specific upper layer.

21. The signal processing method as set forth in Claim 13, wherein said method comprises the step of performing a communication path modification control operation between said corresponding mobile terminal and said base station, said step of performing said communication path modification control operation including the steps of:

transferring a communication path modification request message from a specific one of said upper layers of said corresponding mobile terminal or base station to said lower layer of said corresponding mobile terminal or base station if said communication path modification control operation between said corresponding mobile terminal and said base station is

requested;

allowing said lower layer to modify a communication path in response to said communication path modification request message from said specific upper layer; and

transferring the modified result from said lower layer to said specific upper layer.

22. The signal processing method as set forth in Claim 13, wherein each of said medium access control sub-layers is adapted to determine formats of data frames according to types of messages to be sent.

23. The signal processing method as set forth in Claim 22, wherein each of said medium access control sub-layers includes:

a forward access channel associated with a channel request acknowledge message and channel response message which are sent from said base station to said corresponding mobile terminal; and

a reverse access channel associated with a channel request message which is sent from said corresponding mobile terminal to said base station.

24. The signal processing method as set forth in Claim 23, wherein said channel request acknowledge message has a

data frame including an address field region, a reserved region, a medium access control frame type region and a cyclic redundancy check region for detection of a frame error.

25. The signal processing method as set forth in Claim 23, wherein said channel response message has a data frame including an address field region, a reserved region, a medium access control frame type region, a cyclic redundancy check region for detection of a frame error, an information region, a padding region and an end of field region.

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26. The signal processing method as set forth in Claim 23, wherein said channel request message has a data frame including an address field region, a reserved region, a medium access control frame type region, a cyclic redundancy check region for detection of a frame error, a paging slot number region and a paging channel number region.

27. The signal processing method as set forth in Claim 23, wherein each of said channel request acknowledge message, channel response message and channel request message has a data frame including an address field region, a reserved region and a medium access control frame type region.

28. A method of operating a communication protocol

between a base station and a plurality of mobile terminals using medium access control sub-layers in a communication system, said medium access control sub-layers being provided respectively in said base station and mobile terminals, wherein each of said medium access control sub-layers is configured to selectively perform an initialization mode step, an idle mode step and a radio resource allocation mode step in response to requests from upper layers thereof.

29. The communication protocol operating method as set forth in Claim 28, wherein said initialization mode step comprises the steps of:

scanning a synchronization channel in a corresponding one of said mobile terminals upon powering said corresponding mobile terminal;

determining whether valid synchronization information is received in said corresponding mobile terminal; and

proceeding to said idle mode step if no valid synchronization information is received in said corresponding mobile terminal and transferring system time information and base station identification information included in said valid synchronization information to a lower layer of said corresponding mobile terminal if said valid synchronization information is received in said corresponding mobile terminal.

30. The communication protocol operating method as set forth in Claim 28, wherein said idle mode step comprises the steps of:

receiving system information periodically broadcasted by said base station;

comparing an identification number of the received system information with a system information identification number stored in a corresponding one of said mobile terminals; and

updating the current system information of said corresponding mobile terminal if the received system information is newly modified system information as a result of the compared result.

31. The communication protocol operating method as set forth in Claim 30, wherein said system information periodically broadcasted by said base station includes information regarding said base station, access channel use control information, control information regarding an adjacent base station and channel list information.

32. The communication protocol operating method as set forth in Claim 28, wherein said radio resource allocation mode step comprises the steps of:

sending a channel request message from a corresponding one of said mobile terminals to said base station upon

receiving a random access request message from a specific one of said upper layers of said corresponding mobile terminal;

recognizing that a radio resource allocation operation has been completed, upon receiving a channel response message from said base station, and then proceeding to an active wait state;

transferring a radio resource activation request message to a lower layer of said corresponding mobile terminal; and

informing said specific upper layer that a radio resource has been set, upon receiving a radio resource activation response message from said lower layer.

33. The communication protocol operating method as set forth in Claim 28, wherein said radio resource allocation mode step comprises the steps of:

allocating a radio resource requested by a specific one of said mobile terminals, upon receiving a channel request message from said specific mobile terminal, and then sending a channel response message including allocated frequency information and channel allocation description information from said base station to said specific mobile terminal; and

transferring information regarding the allocated radio resource to a lower layer of said base station to activate ~~said lower layer.~~

34. The communication protocol operating method as set forth in Claim 32, wherein each of said medium access control sub-layers is further configured to perform a radio resource activation mode step of requesting said lower layer of said corresponding mobile terminal to modify attributes of said radio resource, upon receiving a radio resource modification request message from a second specific one of said upper layers of said corresponding mobile terminal.

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